APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,138	11/20/2003	Ye-Yi Wang	M61.12-0583	9085

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EXAMINER
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ART UNIT	PAPER NUMBER
2626	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/718,138	WANG ET AL.
	Examiner	Art Unit	
	Danelle E. Jones	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _12 November 2003_.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-21_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-21_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _9/20/2004_.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 1-21 are rejected under 35 U.S.C. 102(b) as being anticipated by

Huang et al. WO 0193249.

Regarding **claim 1,** Huang et al. discloses a speech processing system,

comprising:

. an acoustic model (see page 10, line 19 and fig. 3, element 112);

a composite language model including a rules-based model portion (see

fig. 4, element 144) and a statistical model portion (see page 10, line 20-21 and

fig. 4, element 142);

and a decoder coupled to the acoustic model and the composite language

model and configured to map portions of a natural language speech input to pre-

terminals and slots, derived from a schema, based on the acoustic model and the

composite language model (see page 23, lines 5-14).

Regarding **claim 2,** Huang et al. discloses the speech processing system

of claim 1 wherein the decoder is configured to map portions of the natural

language speech input to the slots based on the rules-based model portion of the

composite language model (see page 23, lines 5-14).

Regarding **claim 3,** Huang et al. discloses the speech processing system

of claim 1 wherein the decoder is configured to map portions of the natural

language speech input to the pre-terminals based on the statistical model portion

of the composite language model (see page 23, lines 5-14).

Regarding **claim 4,** Huang et al. discloses the speech processing system

of claim 1 wherein the statistical model portion of the composite language model   .

comprises:

a plurality of statistical n-gram models, one statistical n-gram model

corresponding to each pre-terminal (see page 16, line 25 – page 17, line 5).

Regarding **claim 5,** Huang et al. discloses the speech processing system

of claim 4 wherein the composite language model supports a vocabulary of

words (see page 17, lines 5-14),

and wherein the statistical n-gram models are trained based on training

data (see page 15 lines 5-8),

and wherein words in the vocabulary that are not used to train a specific

statistical n-gram model comprise unseen words for the specific statistical n-gram

model (see page 17, lines 28 – page 18 lines 5).

Regarding **claim 6,** Huang et al. discloses the speech processing system

of claim 5 wherein the statistical model portion of the composite language model

further comprises: a backoff model portion which, when accessed, is configured

to assign a backoff score to a word in the vocabulary (see page 15, lines 5-15).

Regarding **claim 7,** Huang et al. discloses the speech processing system

of claim 6 wherein each statistical n-gram model includes a reference to the

backoff model portion for all unseen words (see page 15, lines 5-15).

Regarding **claim 8,** Huang et al. discloses the speech processing system

of claim 7 wherein the backoff model portion comprises: a uniform distribution n-

gram that assigns a uniform score to every word in the vocabulary (see page 19,

line 19 – page 20 line 3).

Regarding **claim 9,** Huang et al. discloses the speech processing system

of claim 1 wherein the rules-based model portion comprises: a context free

grammar (CFG) (see page 3, 28 – page 4, line 5).

Regarding **claim 10,** Huang et al. discloses a method of assigning

probabilities to word hypotheses during speech processing, comprising:

    receiving a word hypothesis (see page 18, lines 6-10);

    accessing a composite language model having a plurality of statistical

models and a plurality of rules-based models (see page 16, line 25 – page 17,

line 5).

assigning an n-gram probability, with an n-gram model, to the word hypothesis if

the word hypothesis corresponds to a word seen during training of the n-gram

model (see page 18, lines 6-10);

and referring to a separate backoff model for the word hypothesis if the

word hypothesis corresponds to a word unseen during training of the n-gram

model (see page 18, lines 6-24);

and assigning a backoff probability to each word hypothesis, that corresponds to

an unseen word, with the backoff model (see page 18, lines 6-24).

Regarding **claim 11,** Huang et al. discloses the method of claim 10 and

further comprising: mapping the word hypotheses to slots derived from an input

schema based on the rules-based models in the composite language model (see

page 18, lines 6-21).

Regarding **claim 12,** Huang et al. discloses the method of claim 11 and

further comprising: mapping the word hypotheses to pre-terminals derived from

the input schema based on probabilities assigned by the n-gram models and the

backoff model in the composite language model (see page 18, lines 6-21).

Regarding **claim 13,** Huang et al. discloses the method of claim 12

wherein referring to a separate backoff model comprises: referring to a uniform

distribution n-gram (see page 19, line 19 – page 20 line 3).

Regarding **claim 14,** Huang et al. discloses the method of claim 13 wherein assigning a backoff probability comprises: assigning a uniform distribution score to every word in the vocabulary (see page 19, line 19 – page 20 line 3).

Regarding **claim 15,** Huang et al. discloses a composite language model for use in a speech recognition system, comprising: a rules-based model portion accessed to map portions of an input speech signal to slots derived from a schema; and a statistical model portion accessed to map portions of the input speech signal to pre-terminals derived from the schema (see page 23, lines 5-14).

Regarding **claim 16,** Huang et al. discloses the composite language model of claim 15 wherein the statistical model portion comprises: a plurality of statistical n-gram models, one statistical n-gram model corresponding to each pre-terminal terminal (see page 16, line 25 – page 17, line 5).

Regarding **claim 17,** Huang et al. discloses the composite language model of claim 15 wherein the rules-based model portion comprises: a context free grammar (CFG) (see page 3, 28 – page 4, line 5).

Regarding **claim 18,** Huang et al. discloses the composite language

model of claim 16 wherein the composite language model supports a vocabulary

of words (see page 17, lines 5-14),

and wherein the statistical n-gram models are trained based on training

data, (see page 15 lines 5-8),

and wherein words in the vocabulary that are not used to train a specific

statistical n-gram model comprise unseen words for the specific statistical n-gram

model (see page 15, lines 5-15).

Regarding **claim 19,** Huang et al. discloses the composite language

model of claim 18 wherein the statistical model portion of the composite

language model further comprises:

a backoff model portion which, when accessed, is configured to assign a

backoff score to a word in the vocabulary (see page 15, lines 5-15).

Regarding **claim 20,** Huang et al. discloses the composite language

model of claim 19 wherein each statistical n-gram model includes a reference to

the backoff model portion for all unseen words (see page 15, lines 5-15).

Regarding **claim 21,** Huang et al. discloses the composite language model of claim 20 wherein the backoff model portion comprises: a uniform distribution n-gram that assigns a uniform score to every word in the vocabulary (see page 19, line 19 – page 20 line 3).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Danelle E. Jones whose telephone number is 571-270-1241. The examiner can normally be reached on M-F 7:30am - 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through

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direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

free). If you would like assistance from a USPTO Customer Service

Representative or access to the automated information system, call 800-786-

9199 (IN USA OR CANADA) or 571-272-1000.

DJ
8/17/2007

RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER